

Status of Coregonines in Lake Huron, 1999

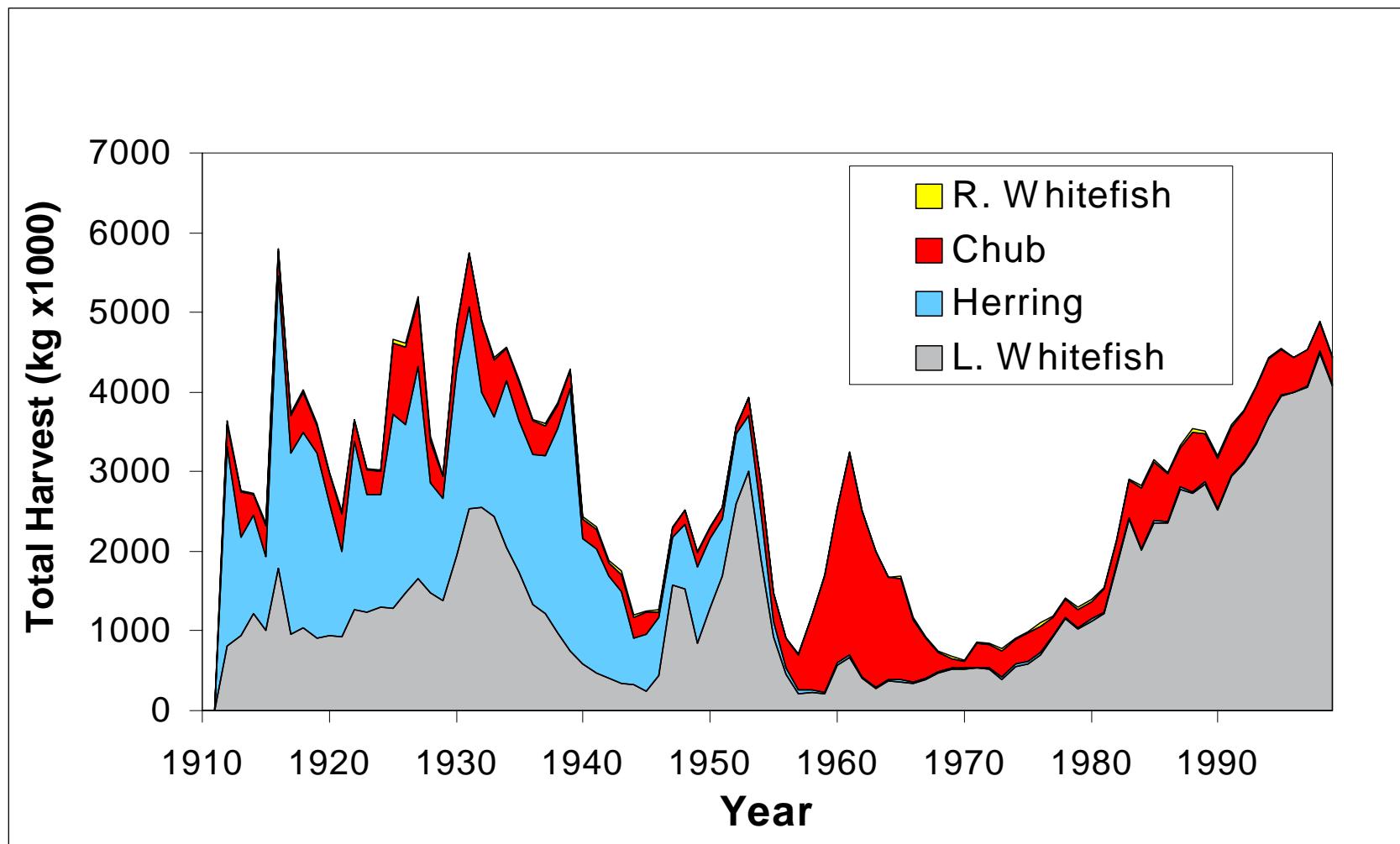
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Upper Lakes Management Unit, Lake Huron, OMNR**

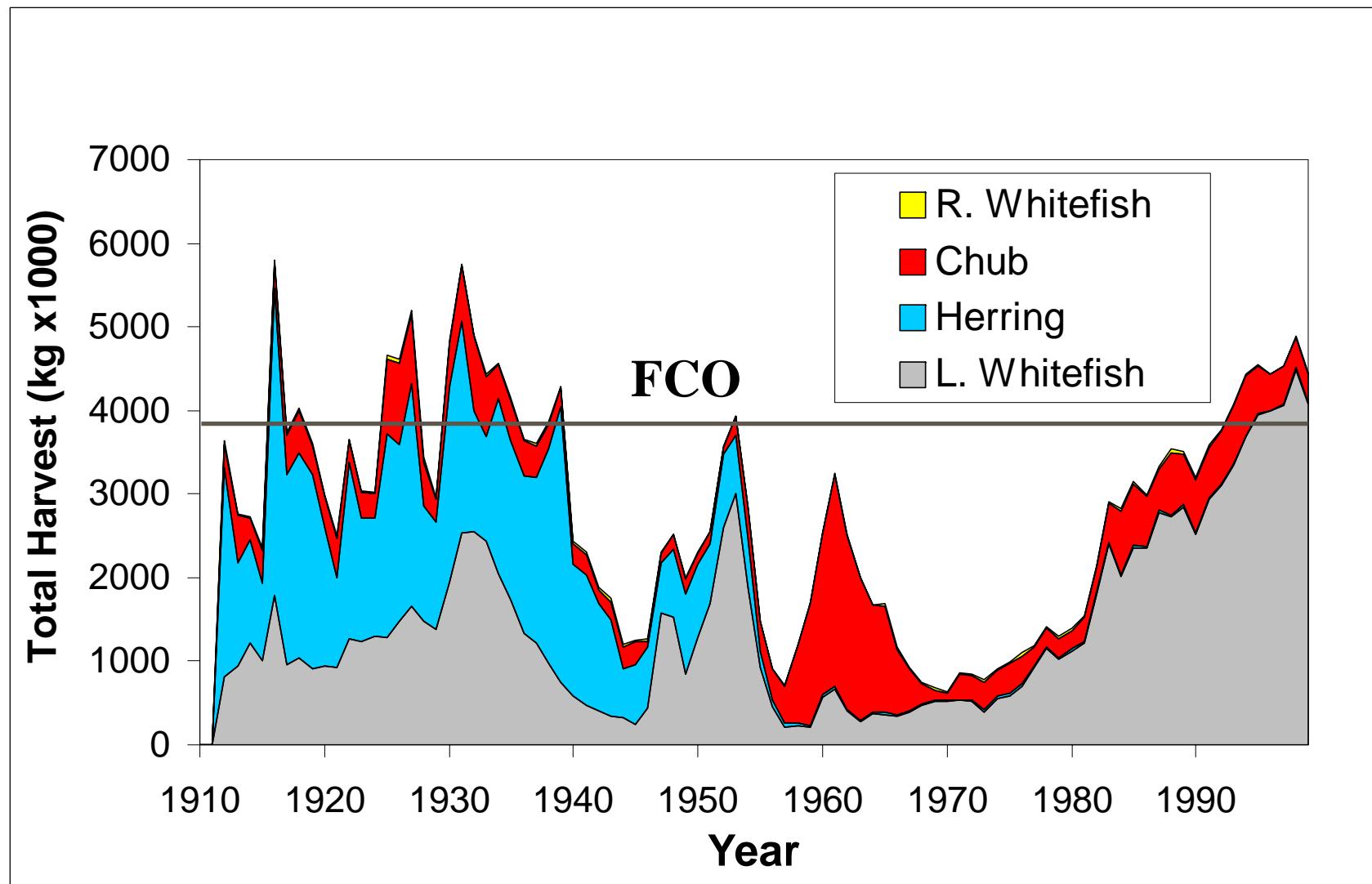
Fish Community Objectives

- i) Maintain diversity**
- ii) Sustainable Annual Harvest = 3.8 million kg**
- iii) Restore lake herring**
- iv) Protect rare deepwater ciscoes**

i) Maintain Diversity

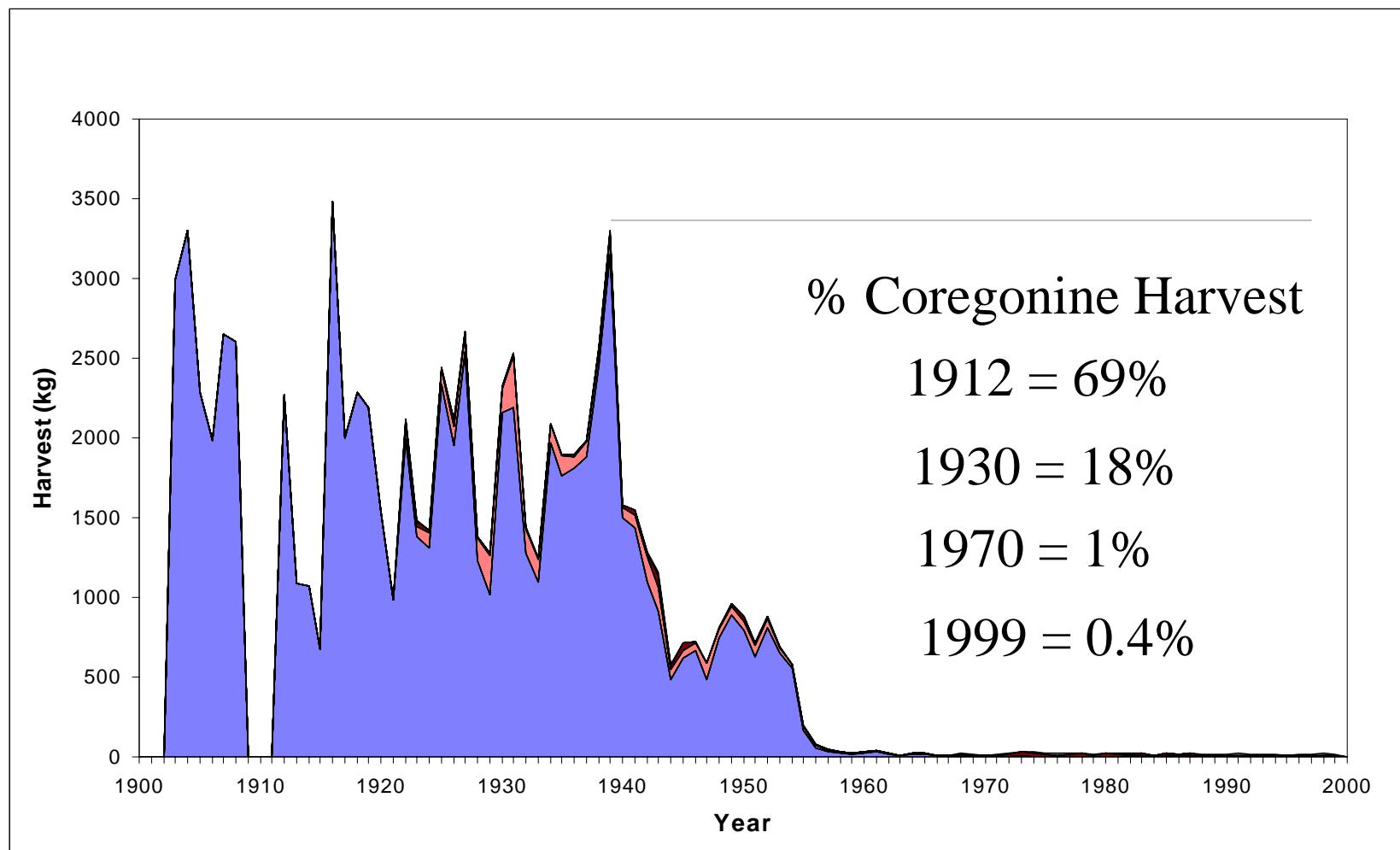


ii) Sustainable Annual Harvest - 3.8×10^6 kg

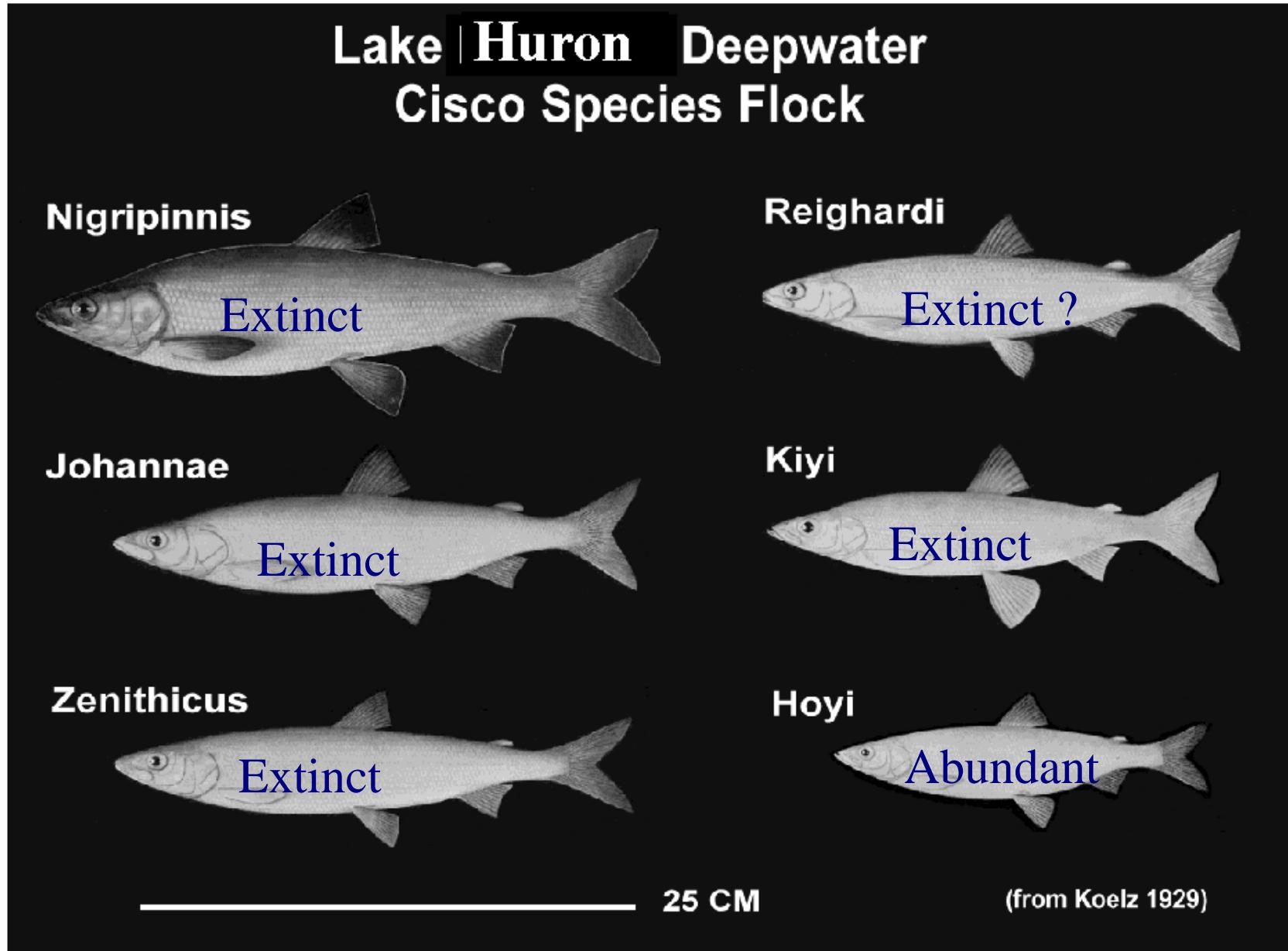


iii) Restore Lake Herring

1999 Harvest = 15,000 kg



iv) Protect Rare Deepwater Ciscoes



Lake Whitefish - Historical development of the fishery



Spangler and Peters (1995):

Native people harvesting whitefish 2,500 B.C.

European settlers harvesting whitefish by 1760

Commercial fishing began in earnest about 1820

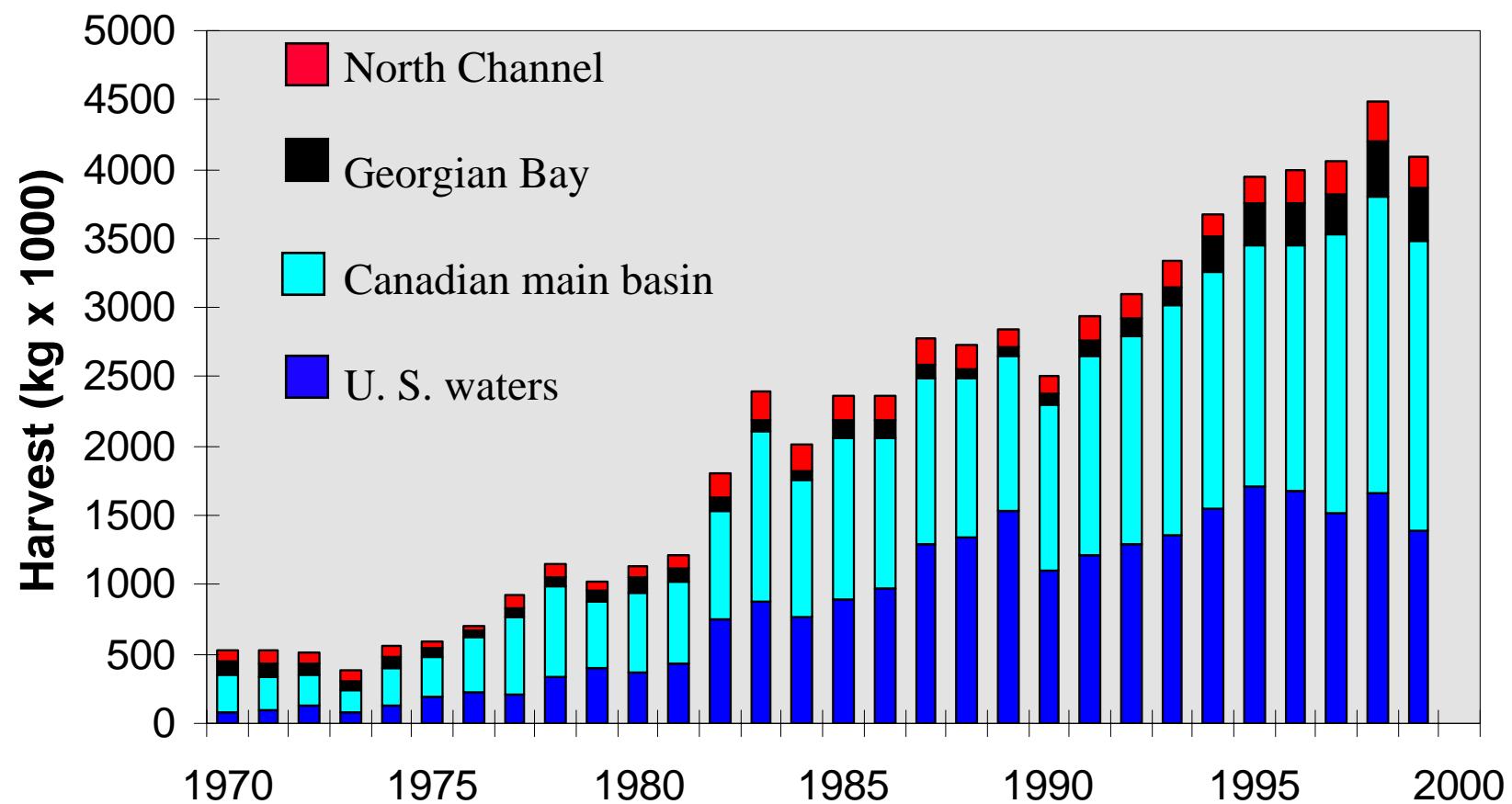
- Canadian seine fishery for whitefish along Fishing Islands
- gill nets fished near Alpena about 1835

Peak whitefish harvest about 1890

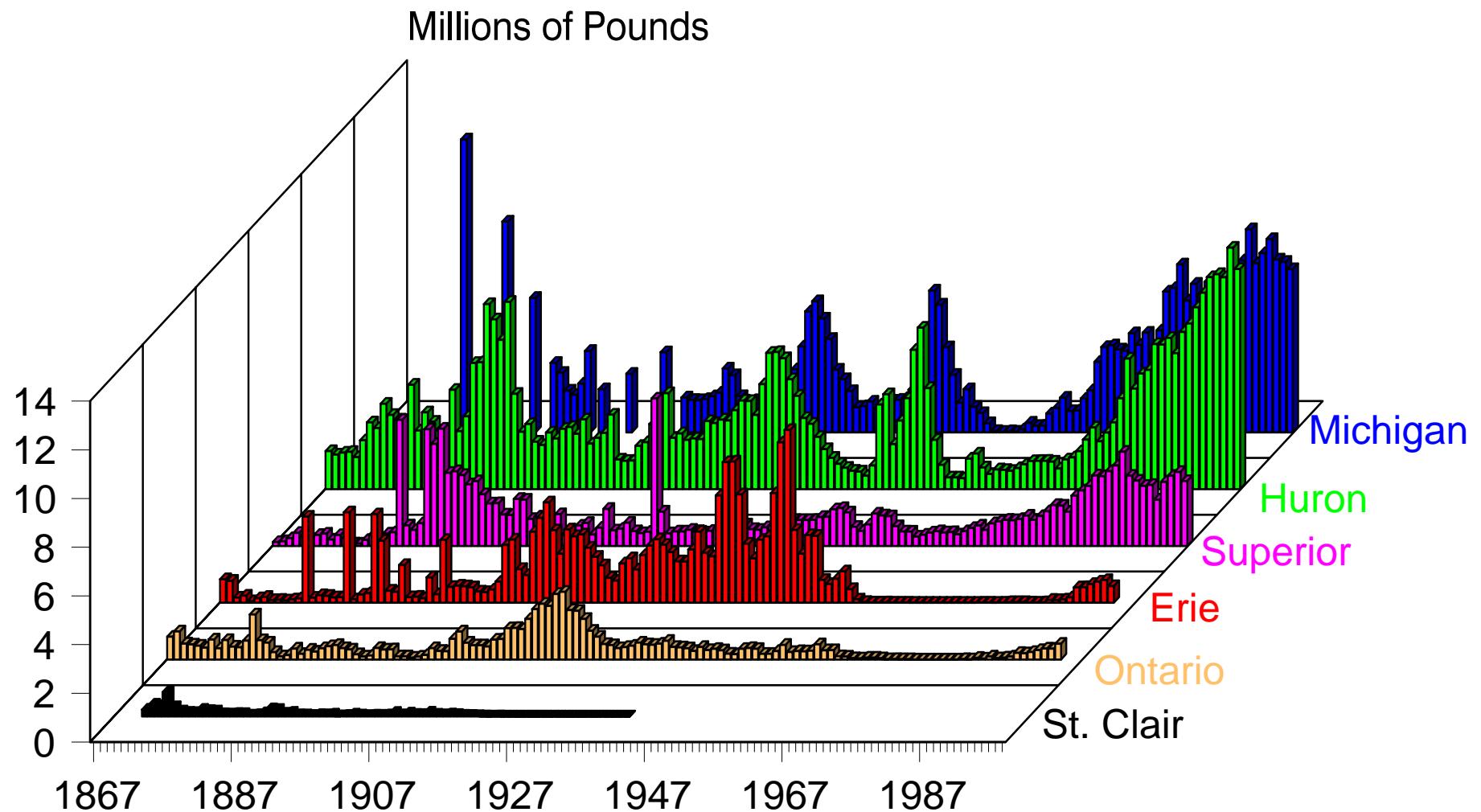
- mesh sizes declining from 5-6 inch stretch to 4 1/2 inch

Lake Whitefish - present day commercial harvests

1999 harvest = 4.1 million kg



Lake Whitefish - Great Lakes Harvest, 1867-1999

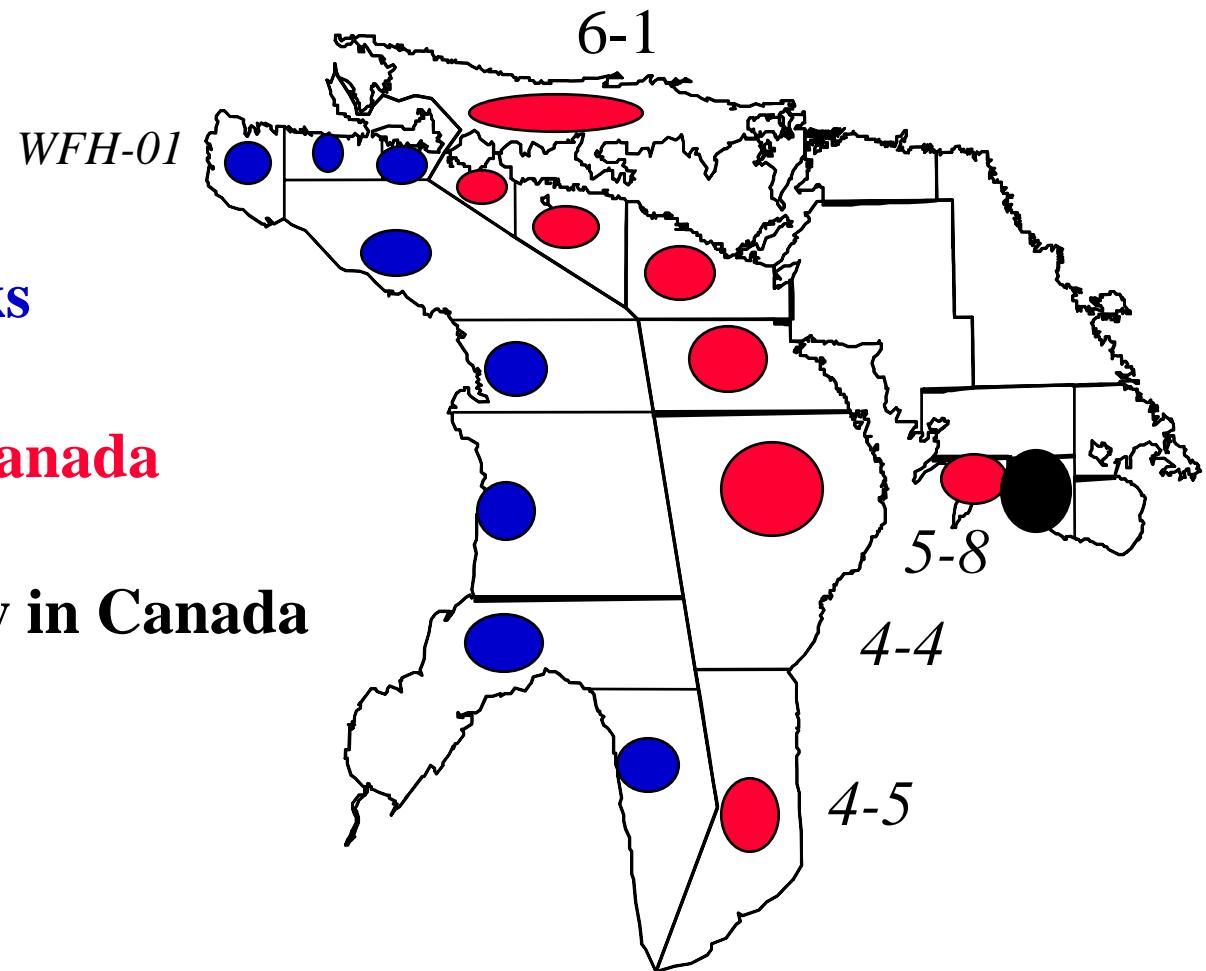


Lake Whitefish - Stock Identification

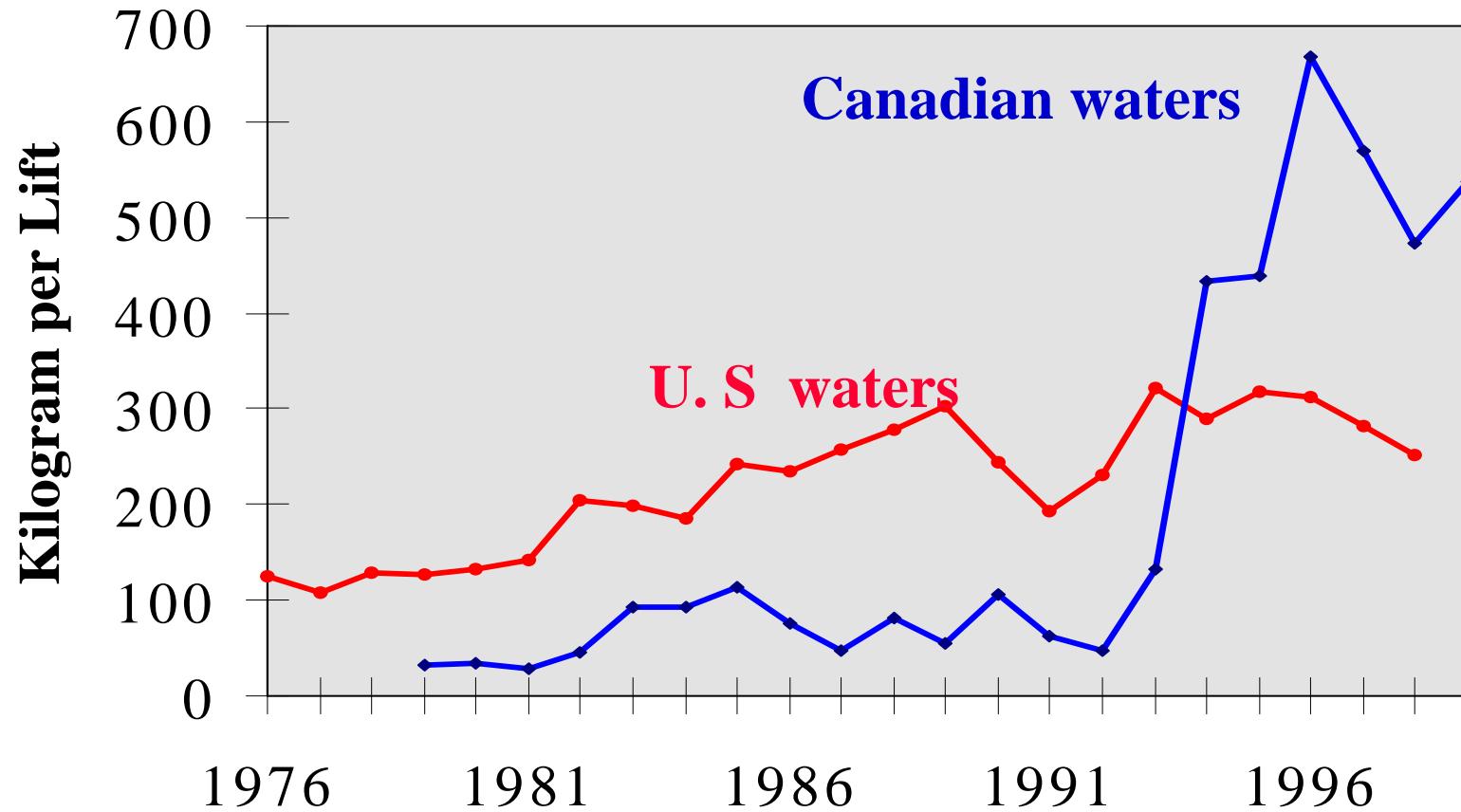
U. S. waters 8 stocks

8 stocks modeled Canada

Stocks under review in Canada



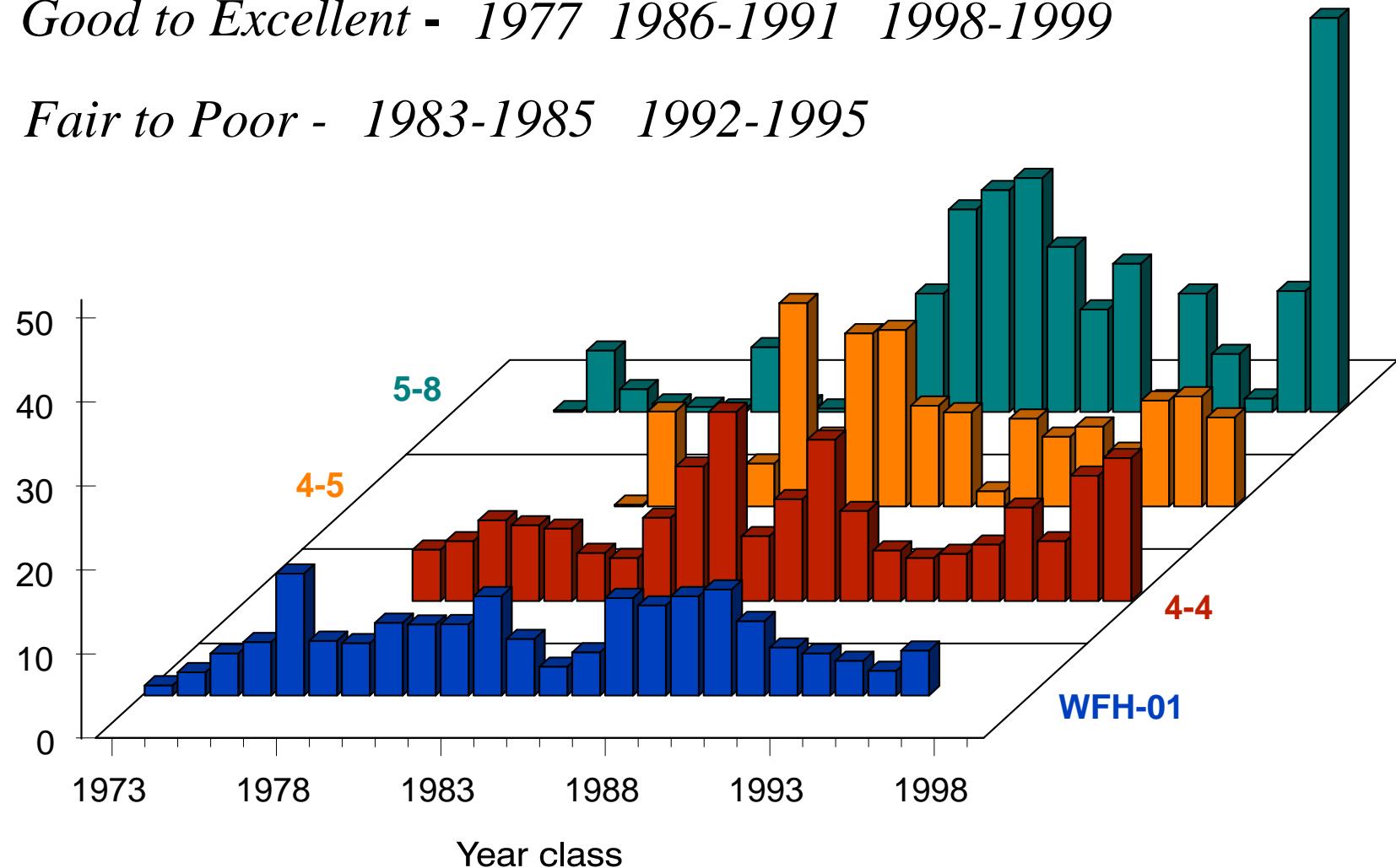
Lake Whitefish - Abundance, i.e. Trap net CPUE



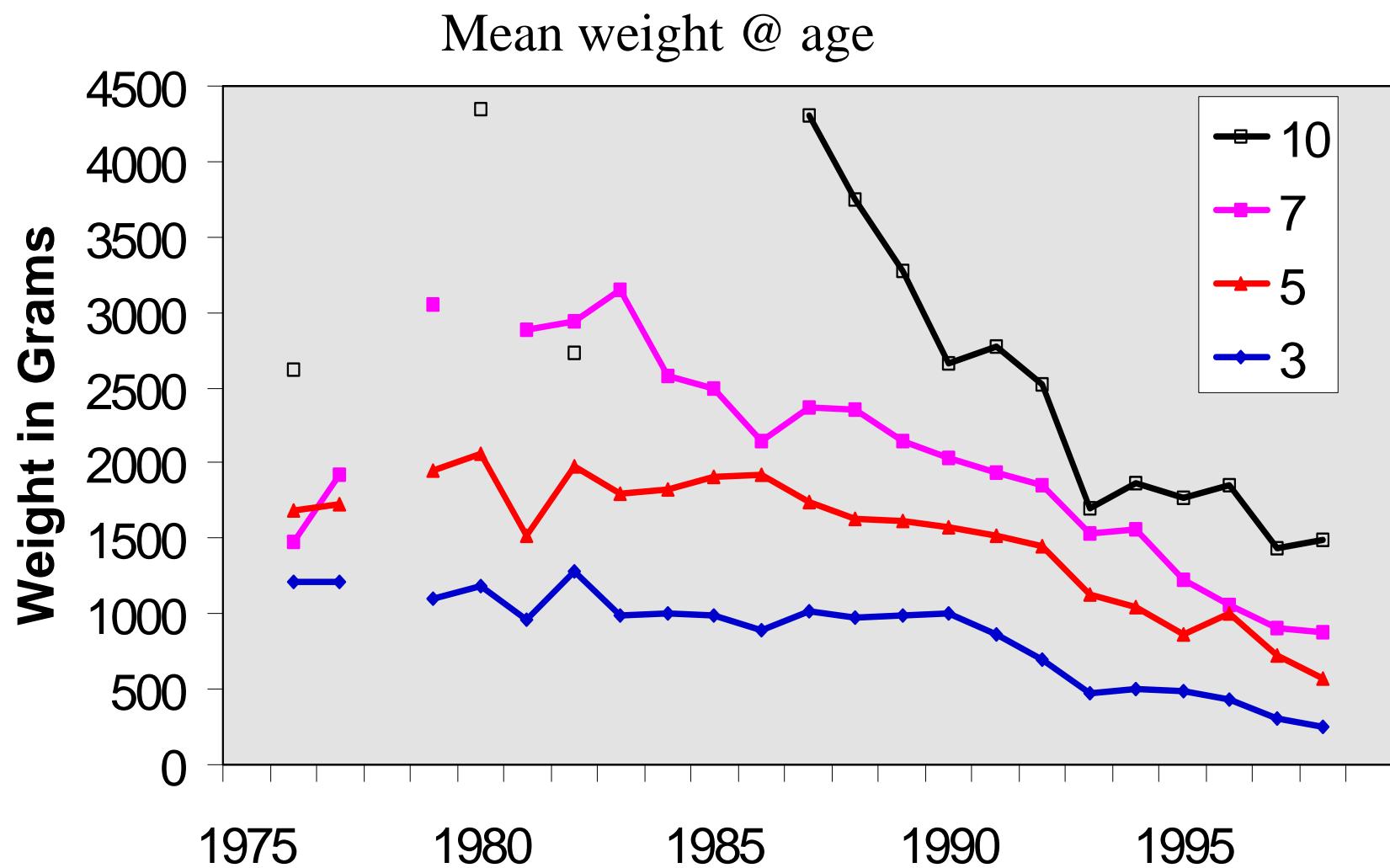
Lake Whitefish - Recruitment

Good to Excellent - 1977 1986-1991 1998-1999

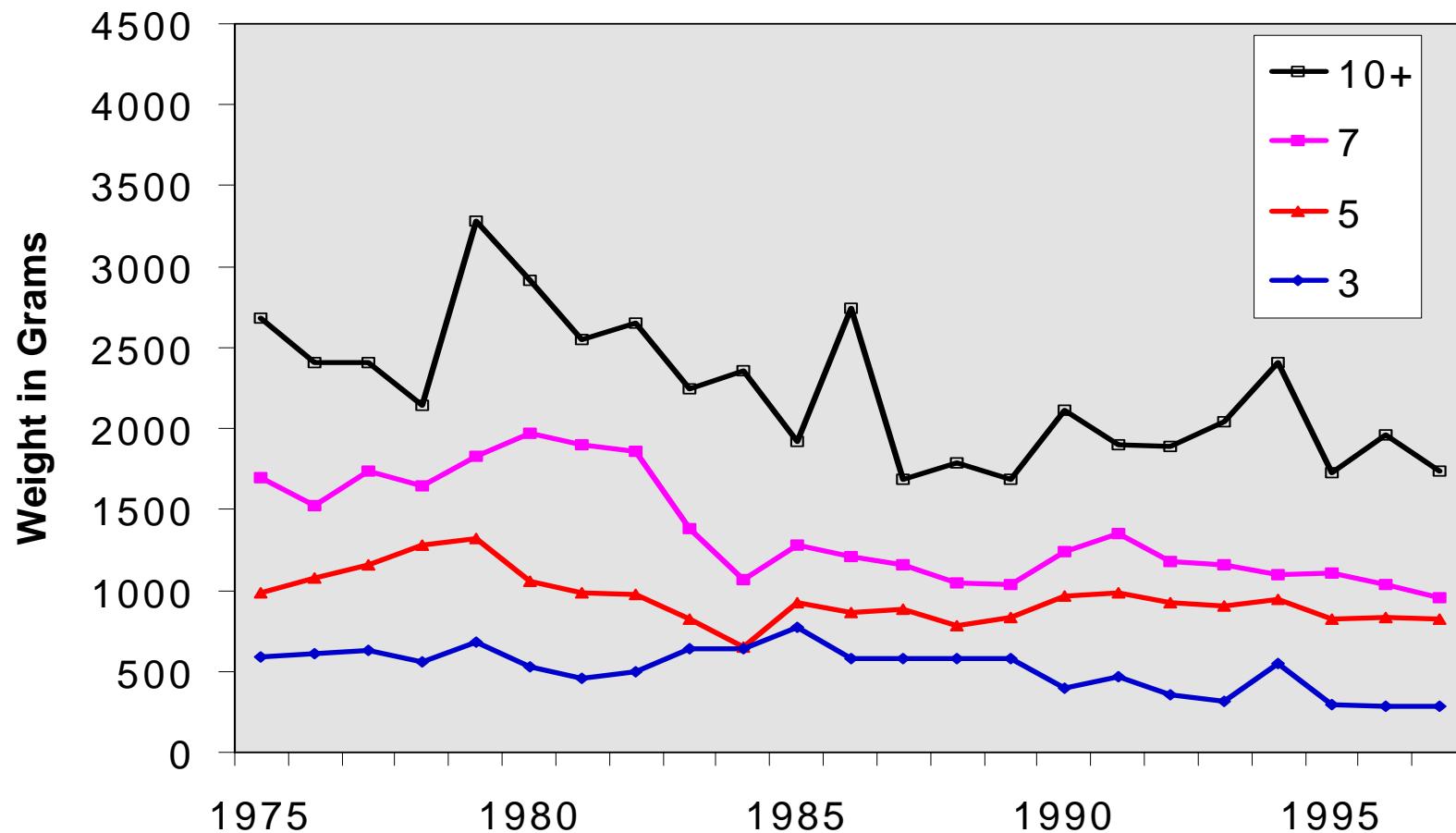
Fair to Poor - 1983-1985 1992-1995



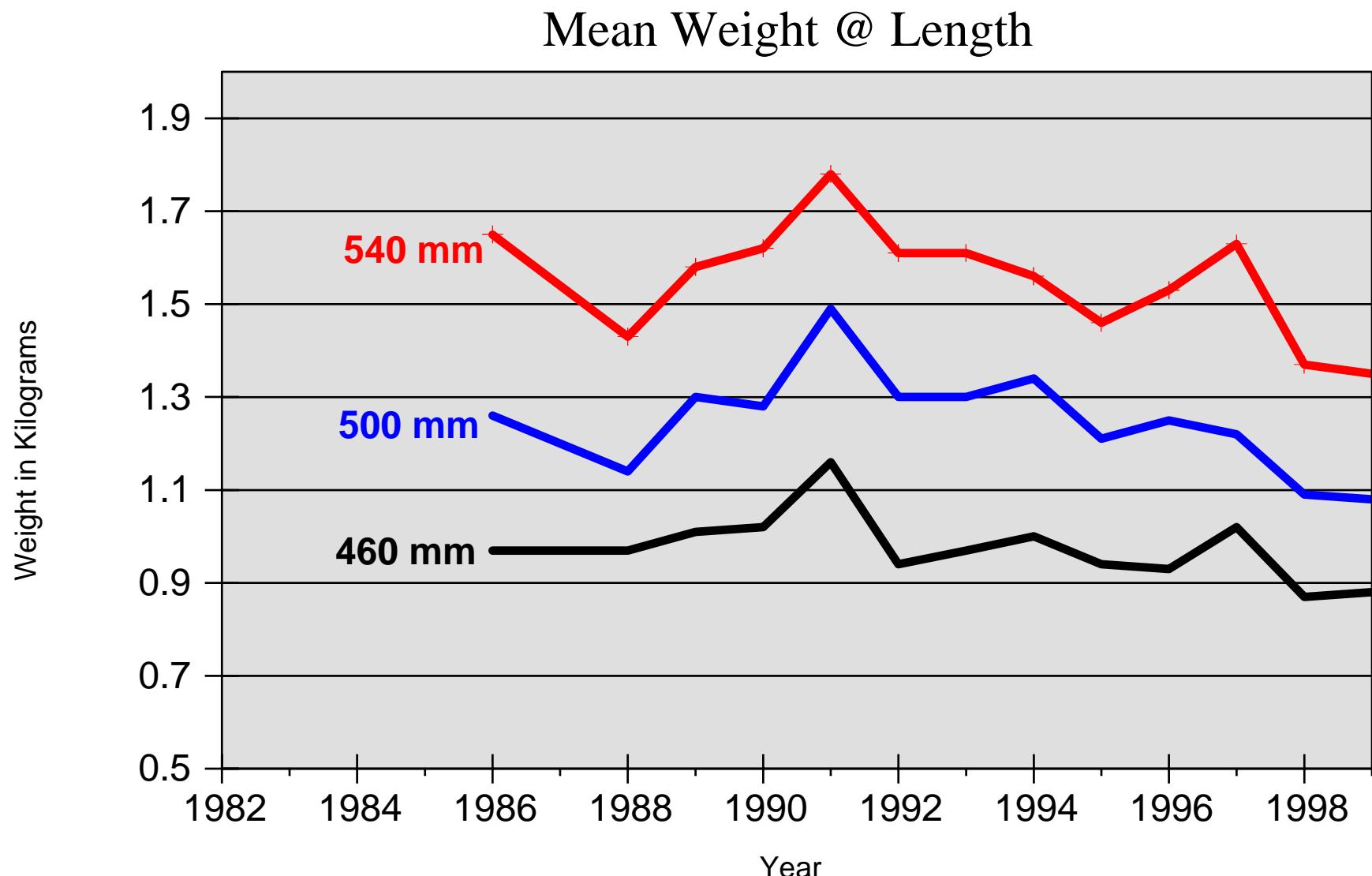
Lake Whitefish - Growth Changes OH-4/5



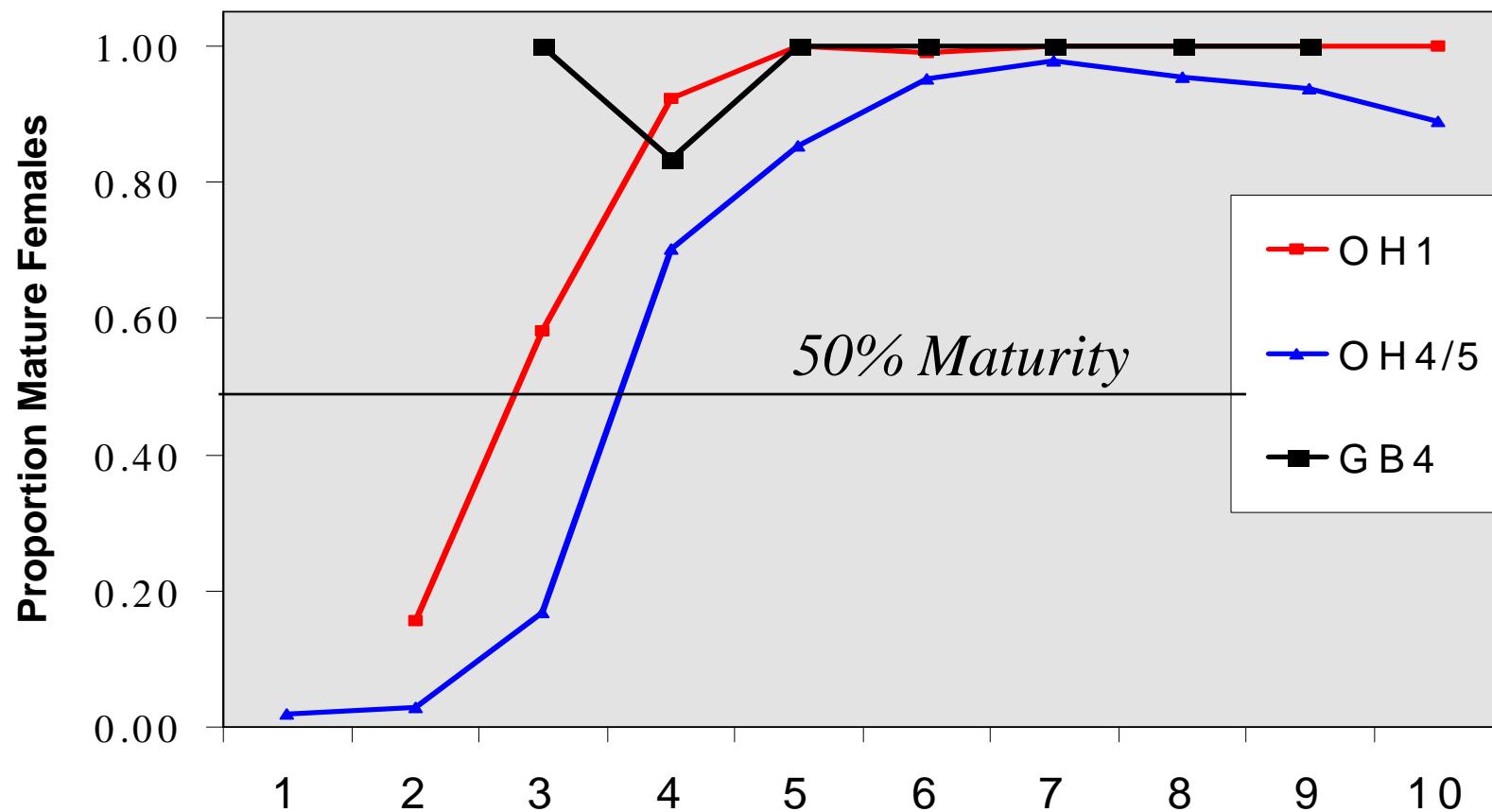
Lake Whitefish - Growth Changes MH-1



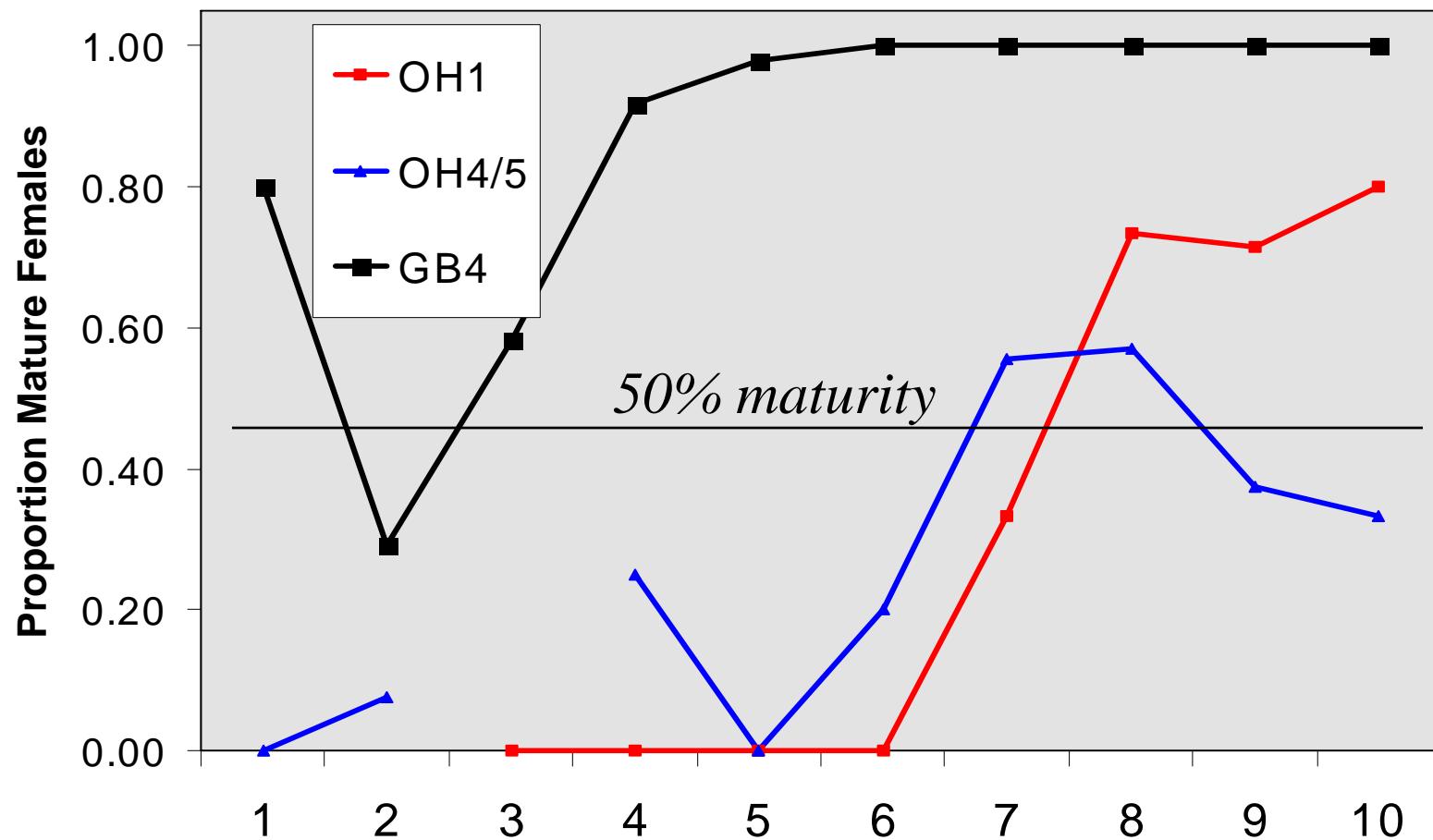
Lake Whitefish - Condition Changes MH-1



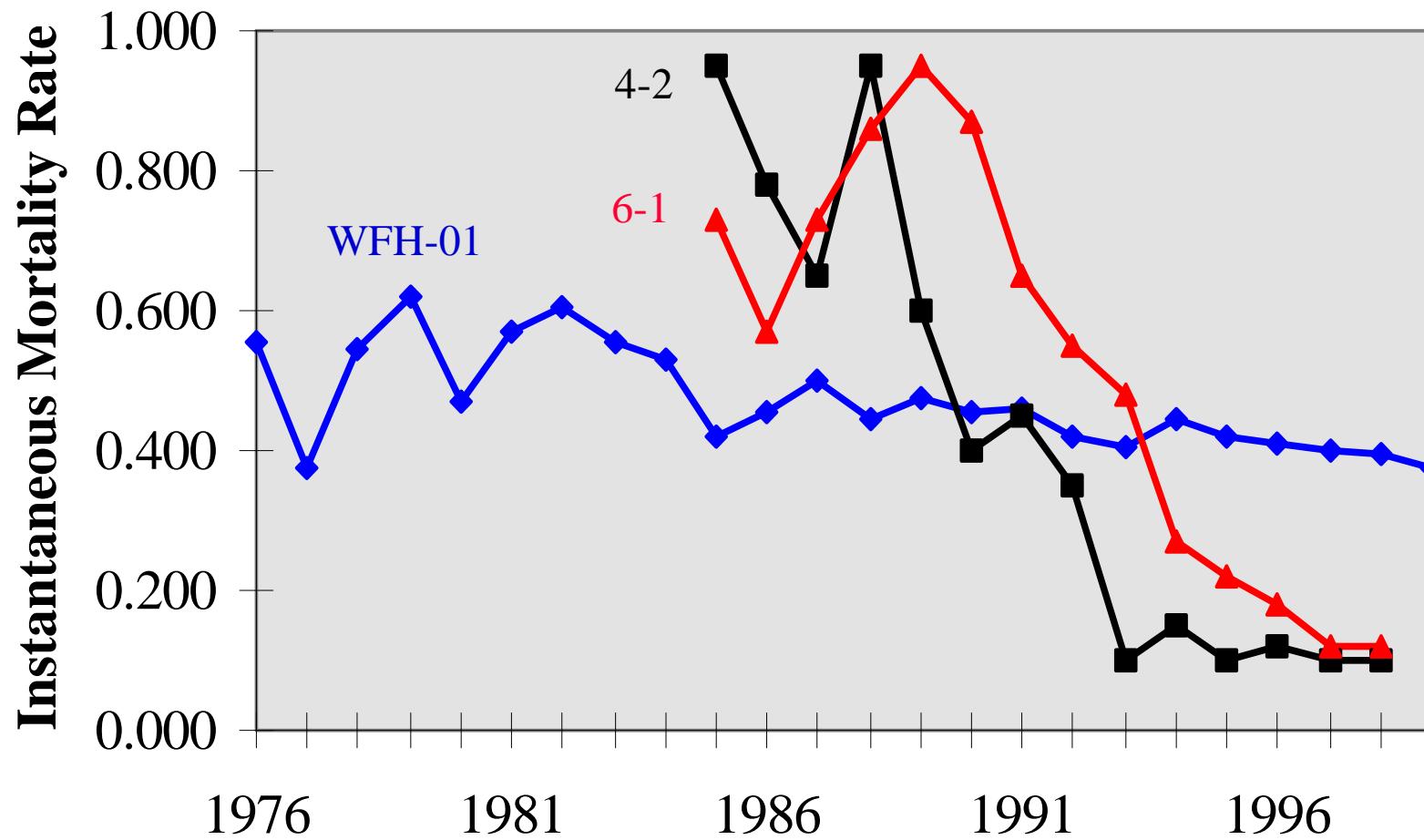
Lake Whitefish - Maturity Canadian Waters 1989



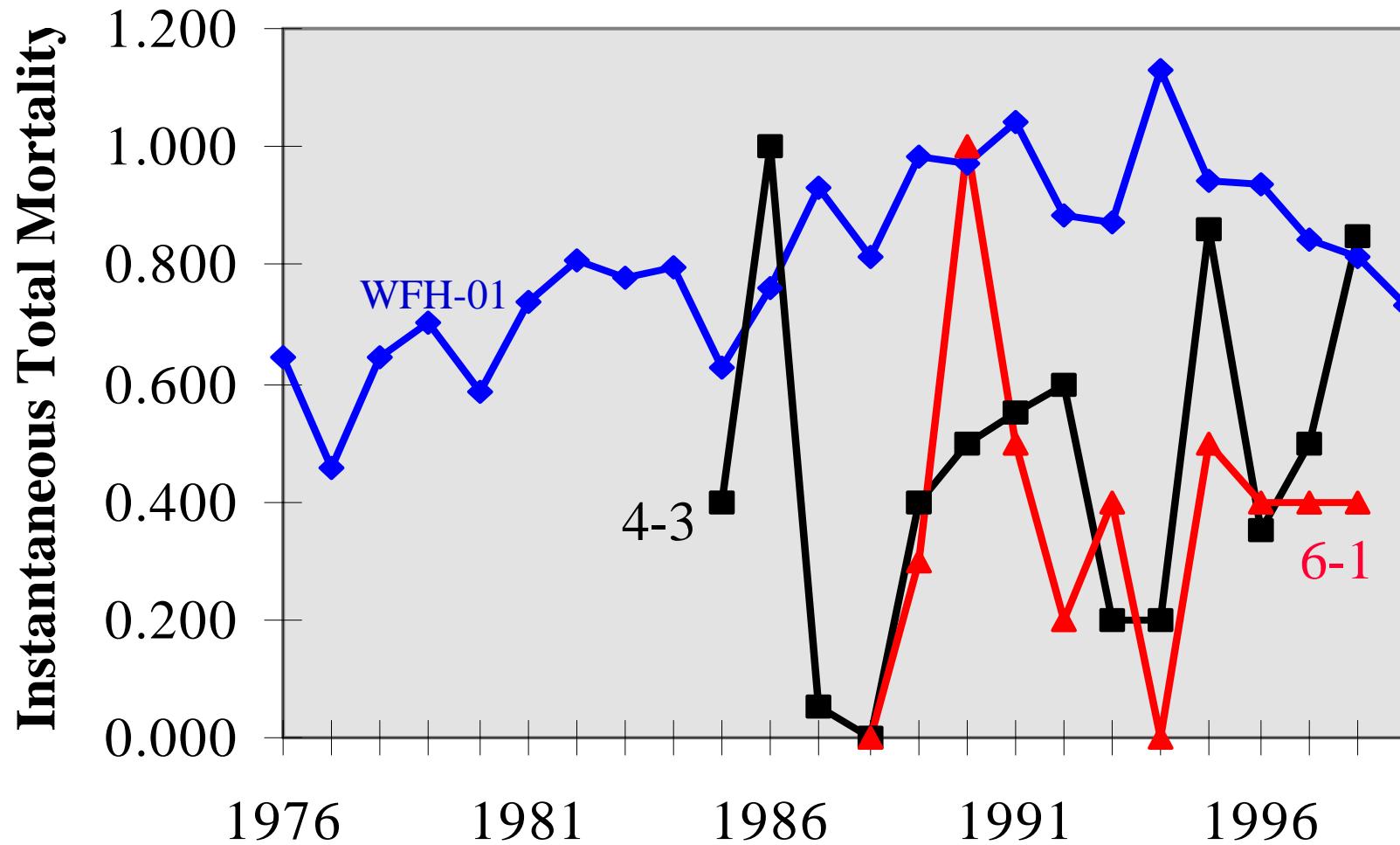
Lake Whitefish - Maturity Canadian Waters 1999



Lake Whitefish - Total Mortality Age 5



Lake Whitefish - Total Mortality Age 9



Lake Whitefish - Synopsis

Harvest targeted at lake whitefish - not normal

Abundance peaked in mid 1990's

Strong year classes 1986 to 1991

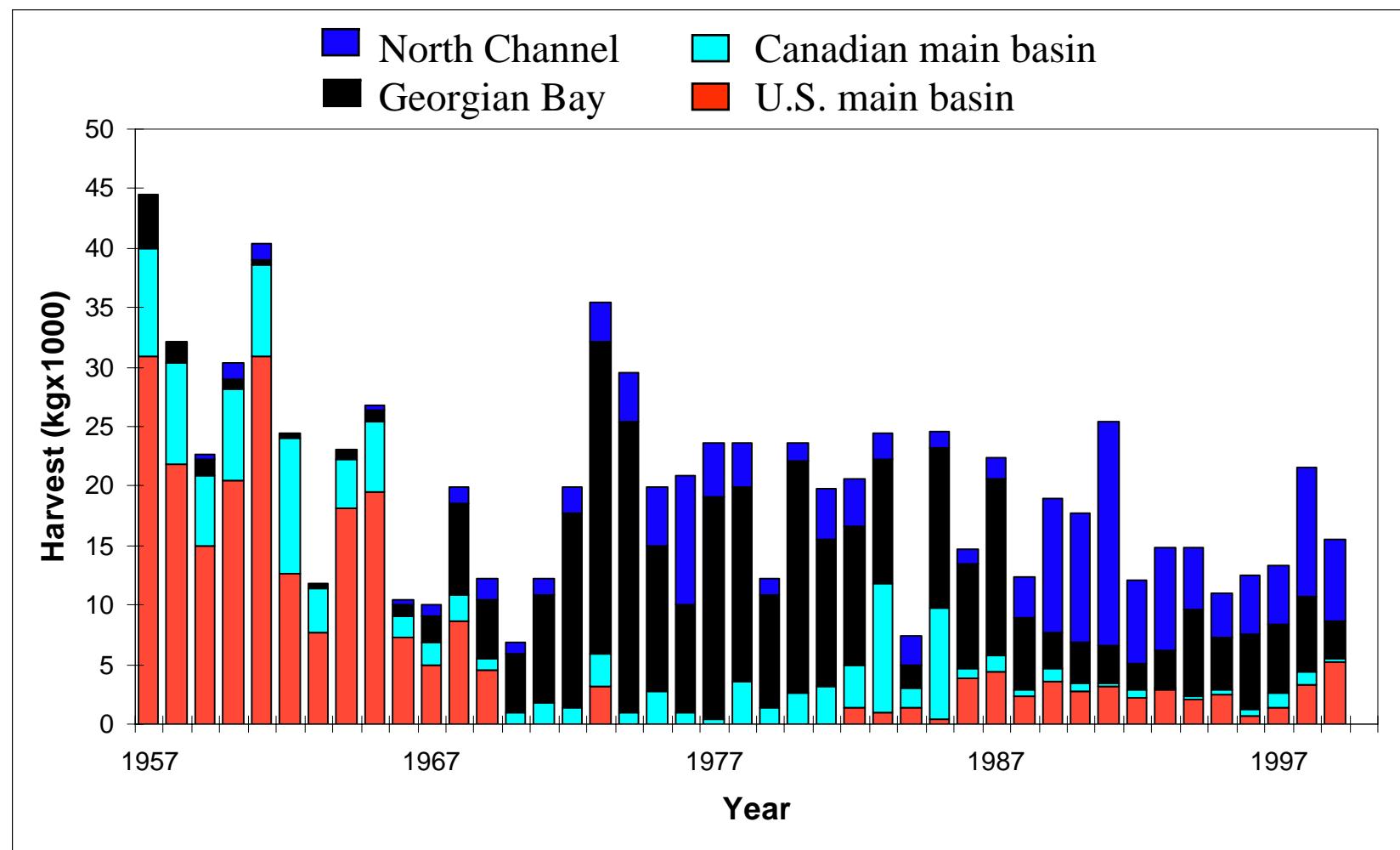
Growth slowed significantly in past several years

Condition declining

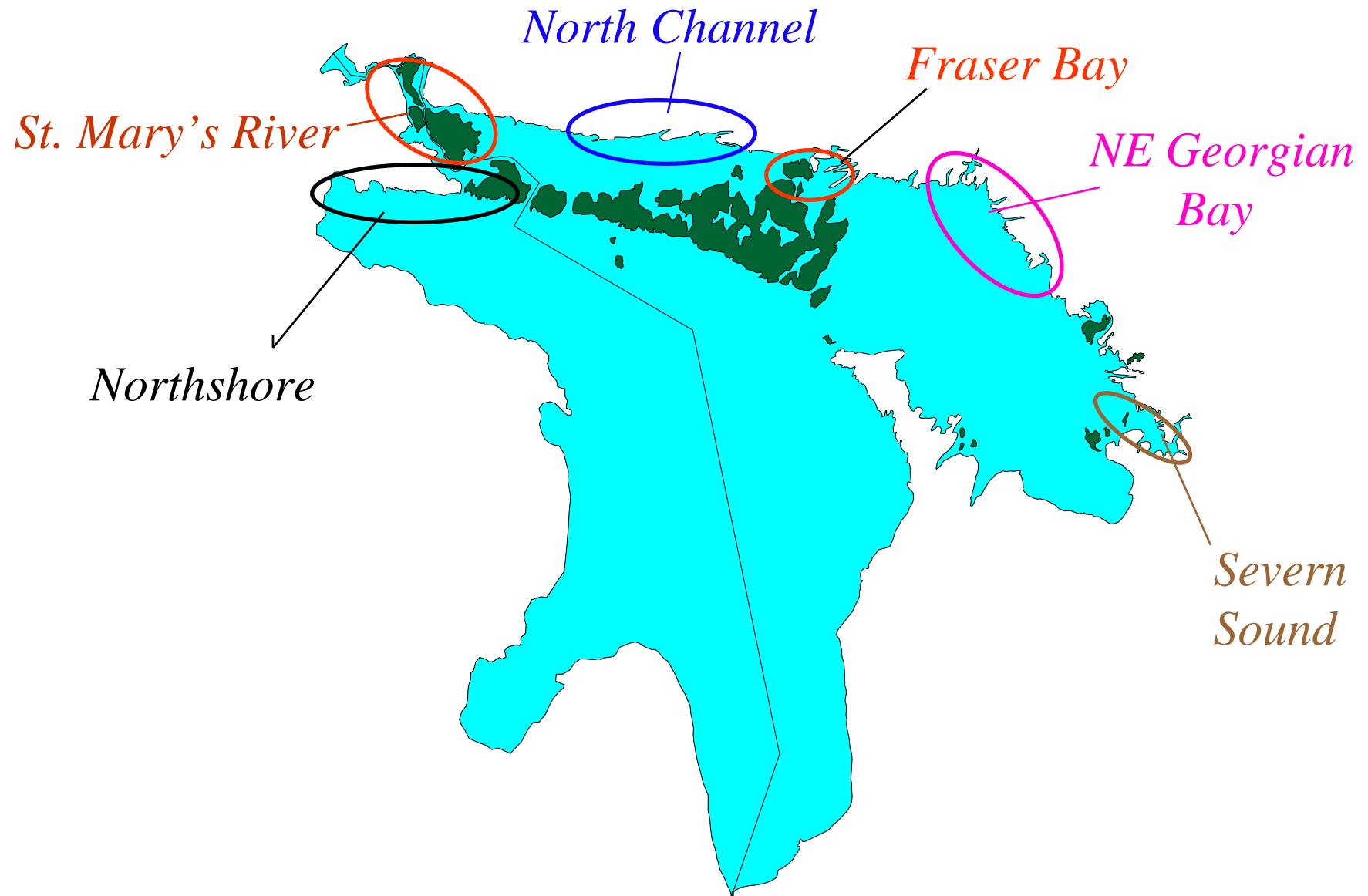
Maturation has been curtailed

Mortality decreasing over several years

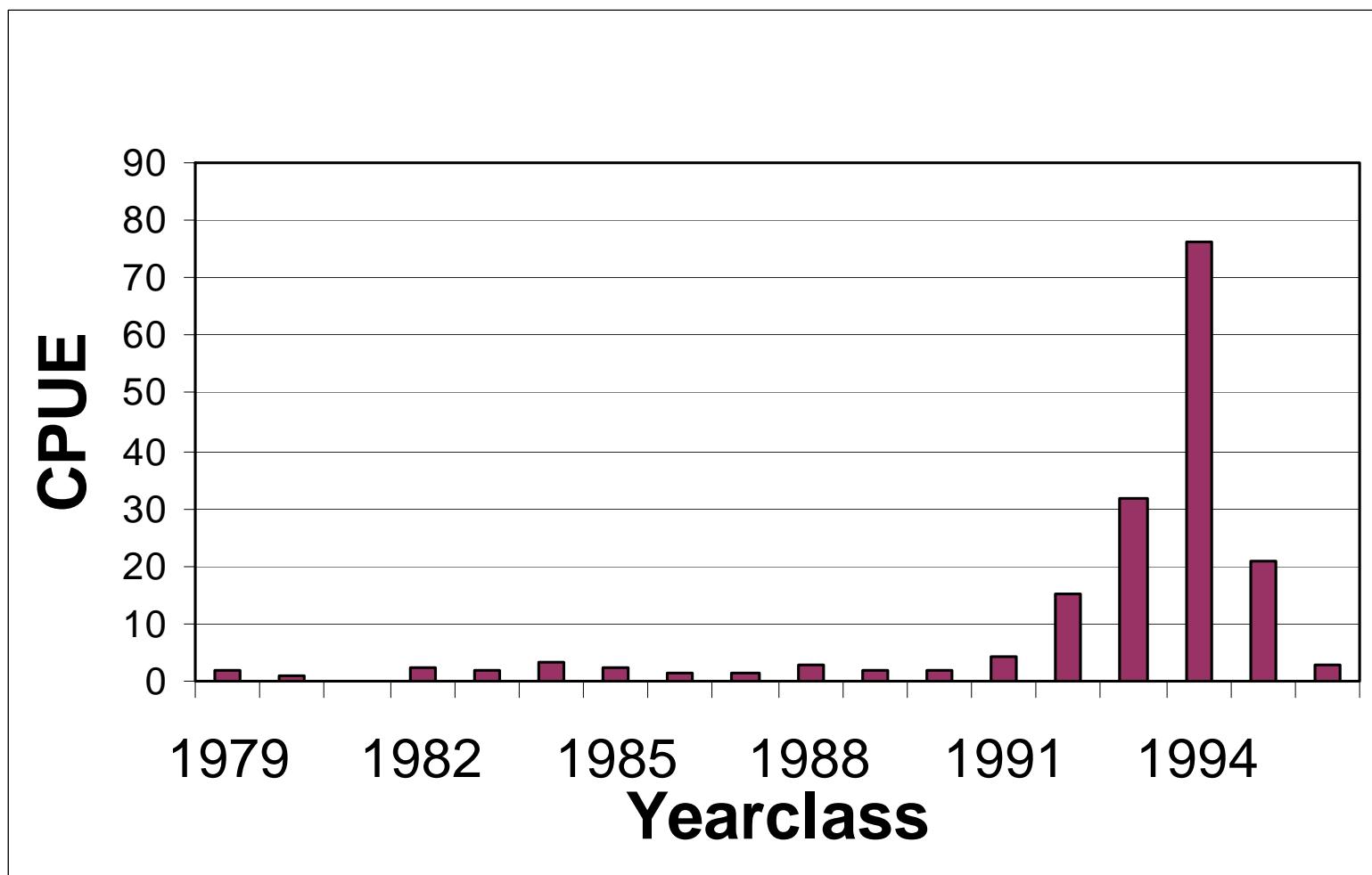
Lake Herring - Current Harvest 1957-1999



Lake Herring - Stable/Increasing Populations



Lake Herring - Recruitment Drummond Island Refuge



Lake Herring - Synopsis

Little or no information

Historical Saginaw Bay harvest non existent

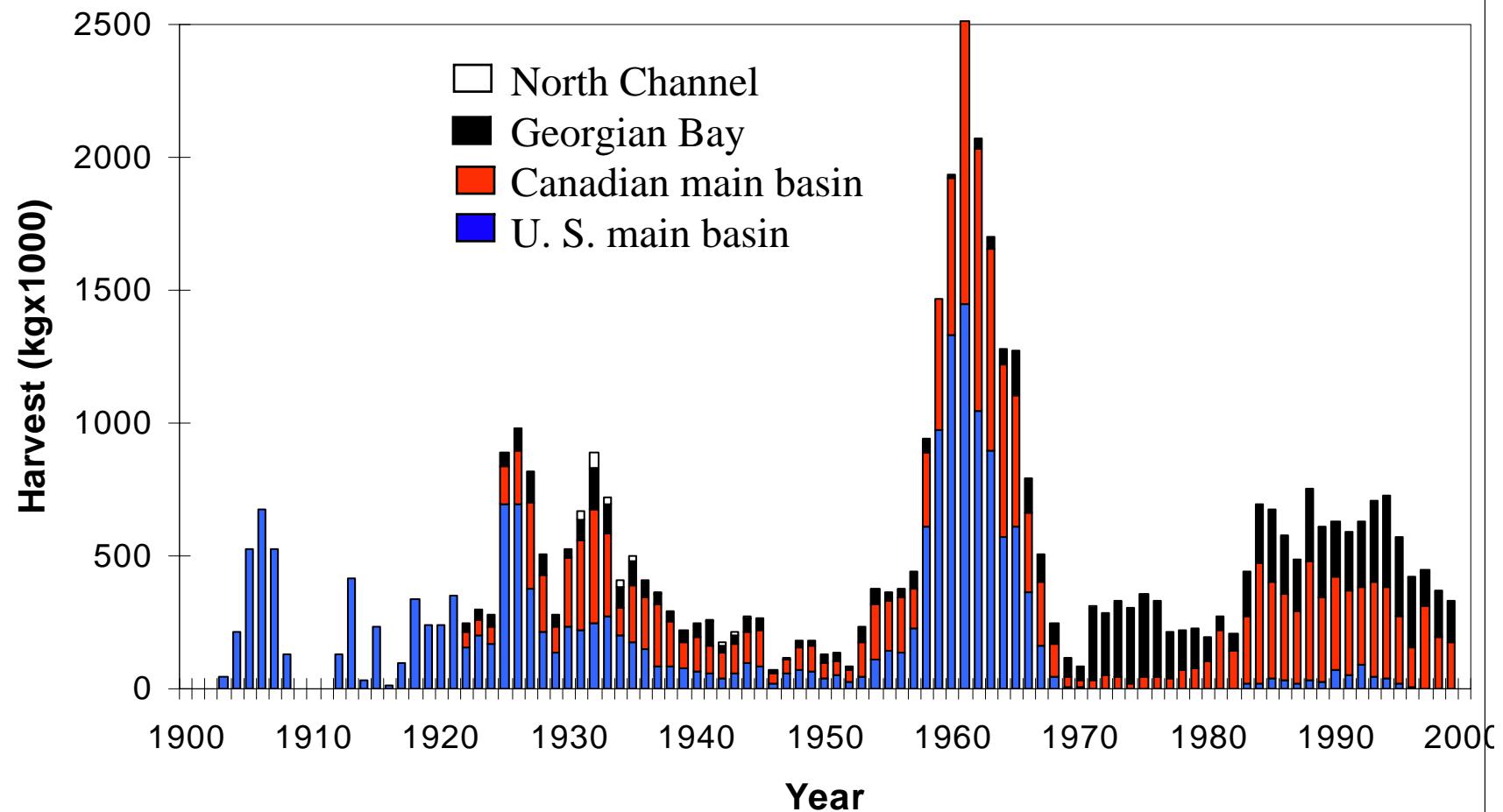
Strong year class 1994

Increasing abundance in northern regions

Re-newed exploitation interests

Deepwater Cisco - Commercial Harvest 1900-1999

1999 Harvest = 330,000 kg



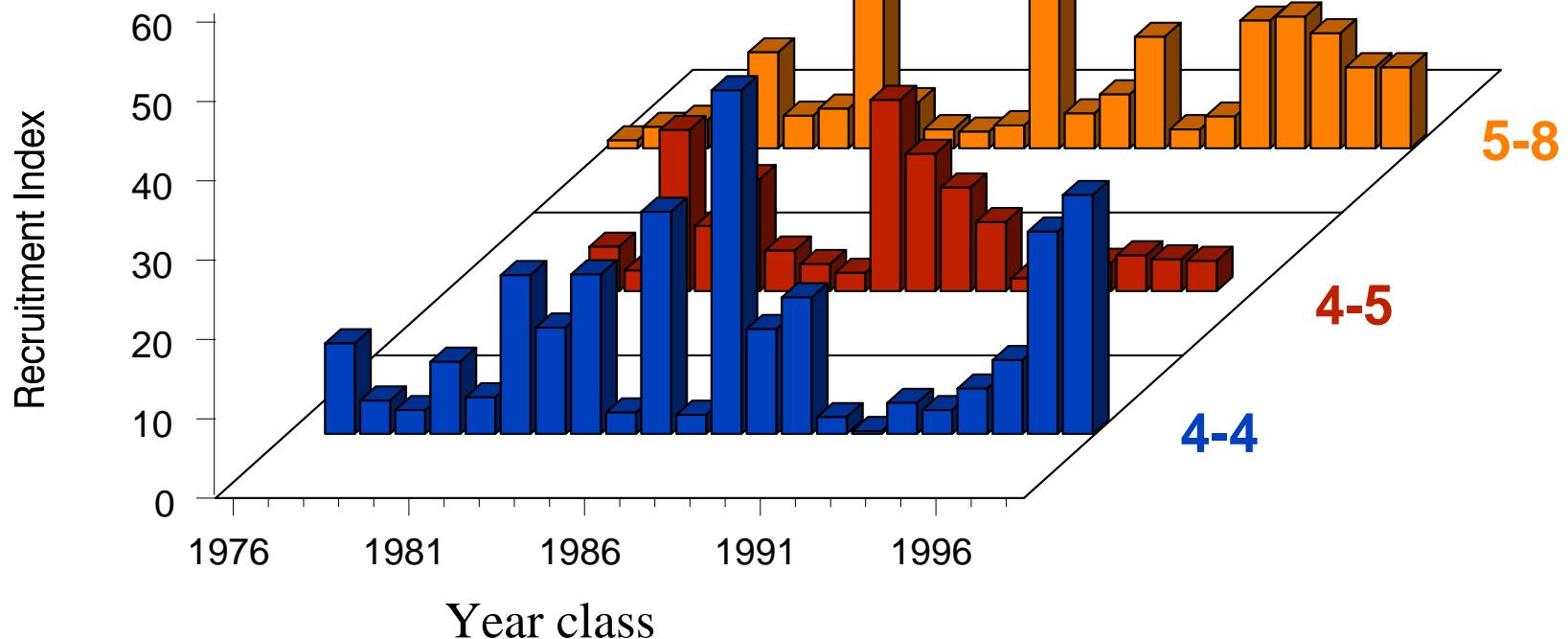
Deepwater Cisco - Recruitment Canadian Units

Inconsistent among units

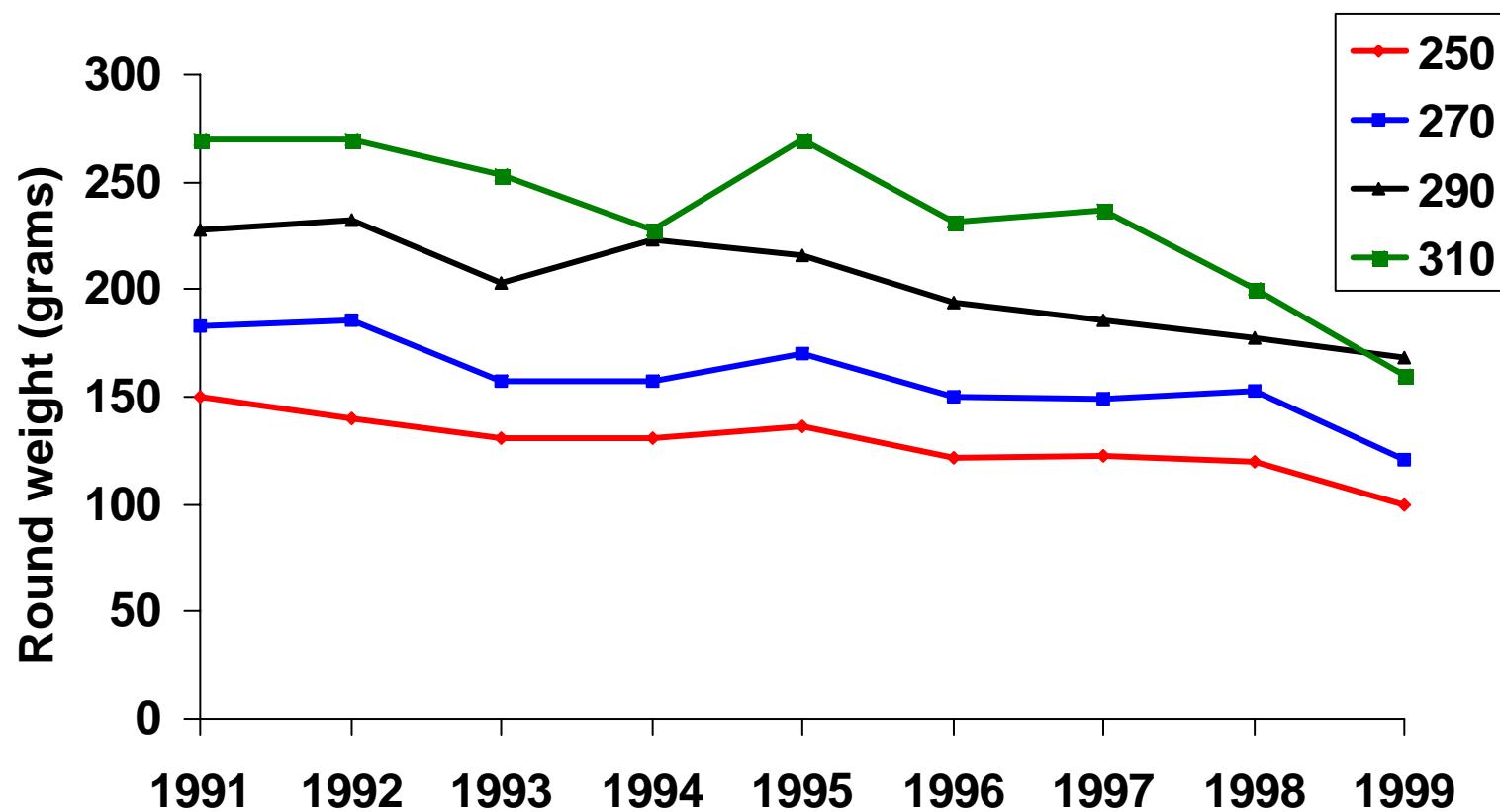
1988 excellent all units

1991-1996 poor main basin

Increasing Georgian Bay



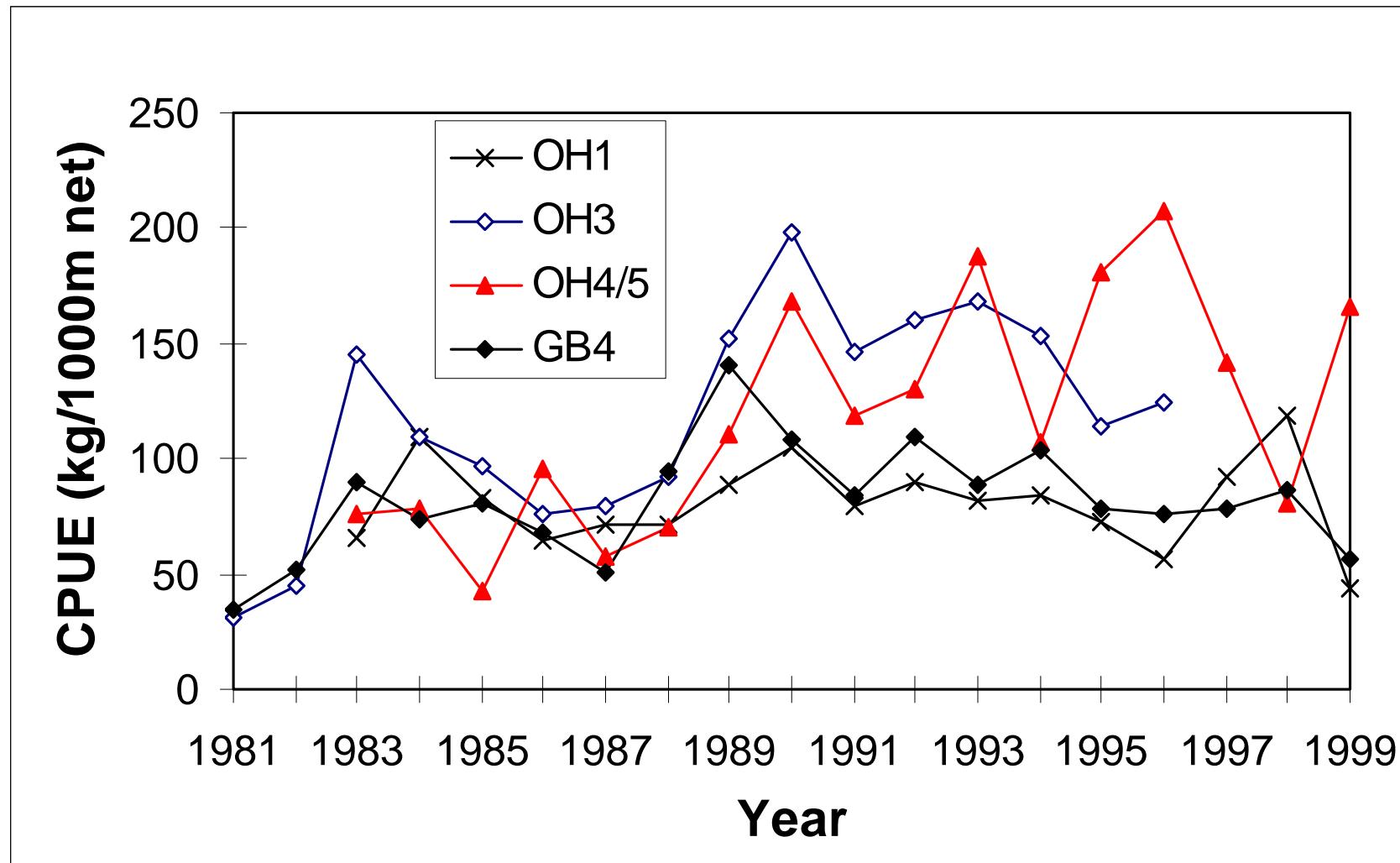
Deepwater Cisco - Condition MH-1



Deepwater Cisco - Stress to Population

- ◆ Water Belly Syndrome 1998 & 1999
 - ➡ ranged 0-11%
- ◆ High Incidence of Parasites
 - ➡ acanthocephalan worms 40-83% of fish
 - ➡ swimbladder nematode 20-92% of fish
- ◆ Presence of “BKD”
 - ➡ 27% of fish Feb. 1998
 - ➡ 0% 1999

Deepwater Cisco - Abundance Canada - comml fishery



Deepwater Chub - Synopsis

Harvest typical of historic

Saginaw Bay replaced by Georgian Bay

Strong year classes in 1988-1990

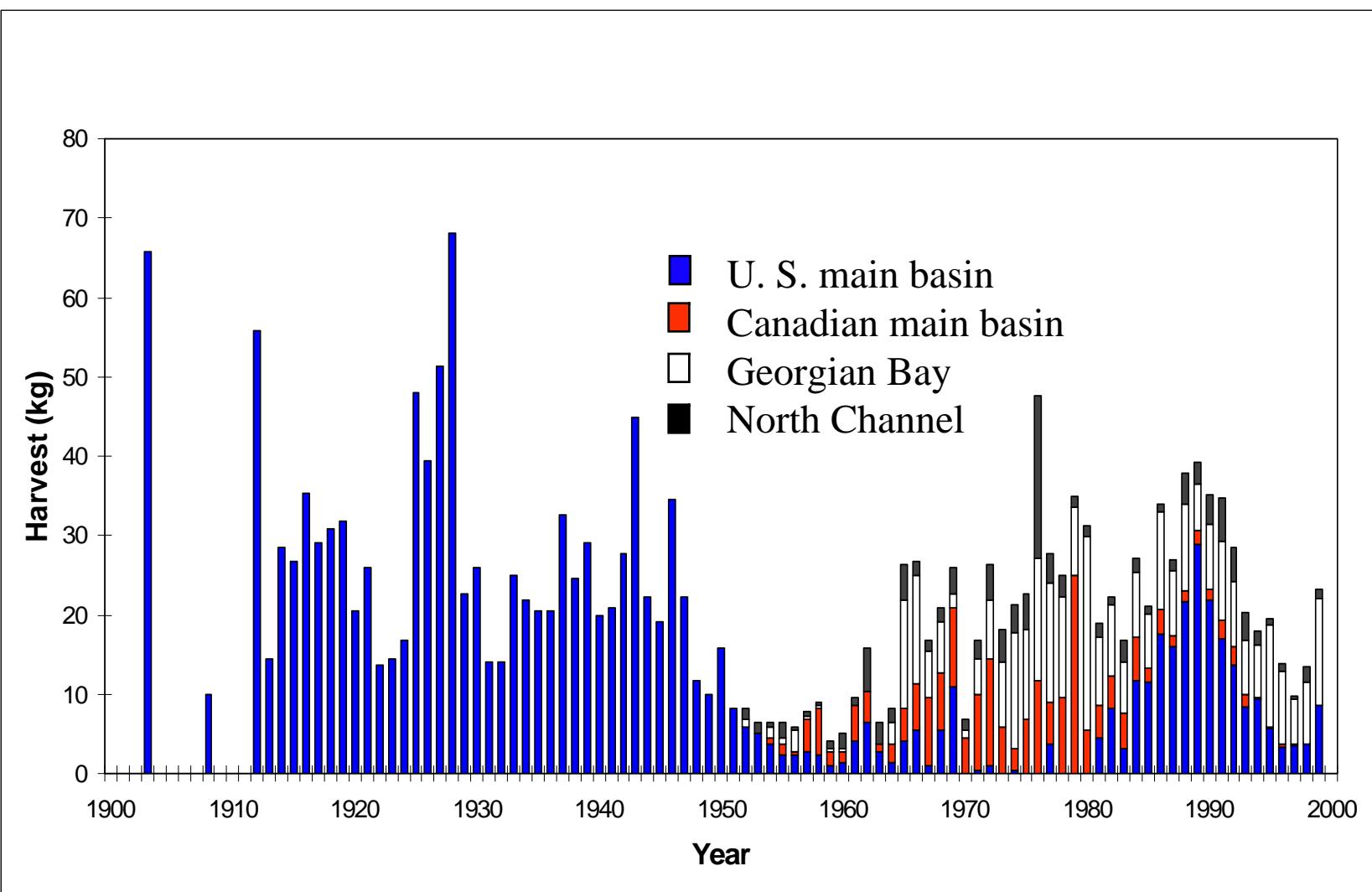
Decreasing abundance in all regions

Decreasing condition

“Water belly condition” prevalent

Concerns regarding above plus other diseases/parasites

Round Whitefish - Commercial Harvest 1900-1999



Round Whitefish - Synopsis

Populations are Stable

Underexploited

Little Knowledge of Populations

Coregonine Summary - FCO Objectives

- ◆ **Diversity objective** - met for 3 of 4 species
 - ◆ not being met for lake herring
- ◆ **Harvest objective** - being exceeded
 - ◆ chub about right
 - ◆ whitefish too much of total
 - ◆ round whitefish about right
 - ◆ lake herring too little
- ◆ **Lake herring objective** - not being met in Saginaw Bay
- ◆ **Deepwater Cisco objective** - not being met, probably can't